



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,464	12/26/2001	Shahriar Vazan	D/99694	2957

7590 09/12/2003

Patent Documentation Center
Xerox Corporation
Xerox Square 20th Floor
100 Clinton Ave. S.
Rochester, NY 14644

EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
----------	--------------

2861

DATE MAILED: 09/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,464

Applicant(s)

VAZAN, SHAHRIAR

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☒ Claim(s) 2,3,5 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 4 is objected to because of the following informalities:

- Line 2, "to digital" should read --to digitalize--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Creutzmann et al. (U.S. 4,780,731).

Creutzmann et al. discloses an electrophotographic printer comprising LED printbar having a plurality of individual LEDs; said plurality of individual LEDs having a first plurality of LEDs (recording light-emitting diodes LED4-LED6) to image a photoreceptor (FL) and a second plurality of LEDs (monitoring light-emitting diodes LED1-LED3) to image a photodetector (FE), a current driver (drive current stages T1-T6) having a control input (from printer control DS), said current driver for applying a drive current to said plurality of individual LEDs, wherein first drive current is controlled by said control input, a correction memory (switching time memory SCH1-SCH6) for

Art Unit: 2861

storing a plurality of sets of correction values, said correction memory for applying one of said sets of correction value to said control input, sensing means for comparing the light output from said second plurality of LEDs at said photodetector to a predetermined light output for loading the appropriate one of said plurality of sets of correction values from said correction memory to said control input.

Although Creutzmann et al. discloses an equal number of recording and monitoring light-emitting diodes, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to select a desired number of the monitoring light-emitting diodes to be less than that of the recording light-emitting diodes, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Creutzmann et al. in view of Doi (U.S. 4,747,091).

Creutzmann et al. discloses a calibration method for correcting exposure non-uniformities in an LED printbar comprising determining a first sets of correction values for each of the plurality of LEDs, storing said first set of correction values and a plurality of sets of correction values in a correction memory (memory SP), each said correction value being a digital value (using analog-to-digital converter AD) for causing output of light of a substantially predetermined light intensity from the corresponding one of said individual LEDs, measuring (by using the photoelement FE) the light intensity from a predetermined set of individual LEDs (monitoring light-emitting diodes LED1-LED3) of

the printbar, the sets of correction values being dynamically loaded into the printbar during the non-uniformity-correction and printing operation.

However, Creutzmann et al. fails to teach the comparator being used to compared the measured light intensity with a uniform light intensity, and determining a difference between the measured light intensity and the uniform light intensity, and loading the set of correction values into the printbar when the determined difference exceeds a predetermined maximum difference.

Nevertheless, Doi discloses a method for calibrating the light intensity of a write unit, which includes measuring the light intensity of the laser beam (PINMON), comparing the measured light intensity with a threshold value (RDLMTL or RDLMTH), and adjusting the light intensity of the laser beam based on the difference of the comparison (Fig. 3).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the method of calibrating of Creutzmann et al. with the aforementioned teaching of Doi. By doing so, the correction circuitry would selectively compensate for light output differences based on the result of the comparison.

Allowable Subject Matter

5. Claims 2-3 and 5-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of the claimed invention is the inclusion of the limitation that the claimed LED printer includes a shuffler to shuffle the digitized drive current signals before applying the shuffled digitalized drive current signals to the second plurality of LEDs, in the combination as currently claimed in claims 2 and 5, and wherein the LED printer comprises an up/down counter for counting a line of data from said current driver to form digital signals, a scaler and a quantizer to scale and quantizing said digital signals, and a shuffler to shuffle said digital signals before applying said shuffled digitalized drive current signals to said second plurality of LEDs, in the combination as currently claimed in claims 3 and 6, and which are not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

Response to Arguments

7. Applicant's arguments with respect to claims 1 and 4 have been considered but are moot in view of the new grounds of rejection as presented in this Office action.

On the other hand, with regard to Applicant's argument concerning that "Doi discloses the real-time light adjust of a single beam laser" instead of a plurality of laser beams, it is noted that Doi's teaching is relevant in correcting the non-uniformity in a laser light-emitting source by sensing the intensity of the laser light beam, comparing the measured light intensity with a threshold value, and adjusting the light intensity of the laser light beam based on the difference of the comparison. It would have been

obvious at the time the invention was made to a person having ordinary skill in the art to apply the method of calibrating the single laser light beam as taught by Doi in the calibration of the plurality of light-emitting sources comprised in the printhead of Creutzmann et al. Such modification would require only routine skill in the printing art.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

September 4, 2003